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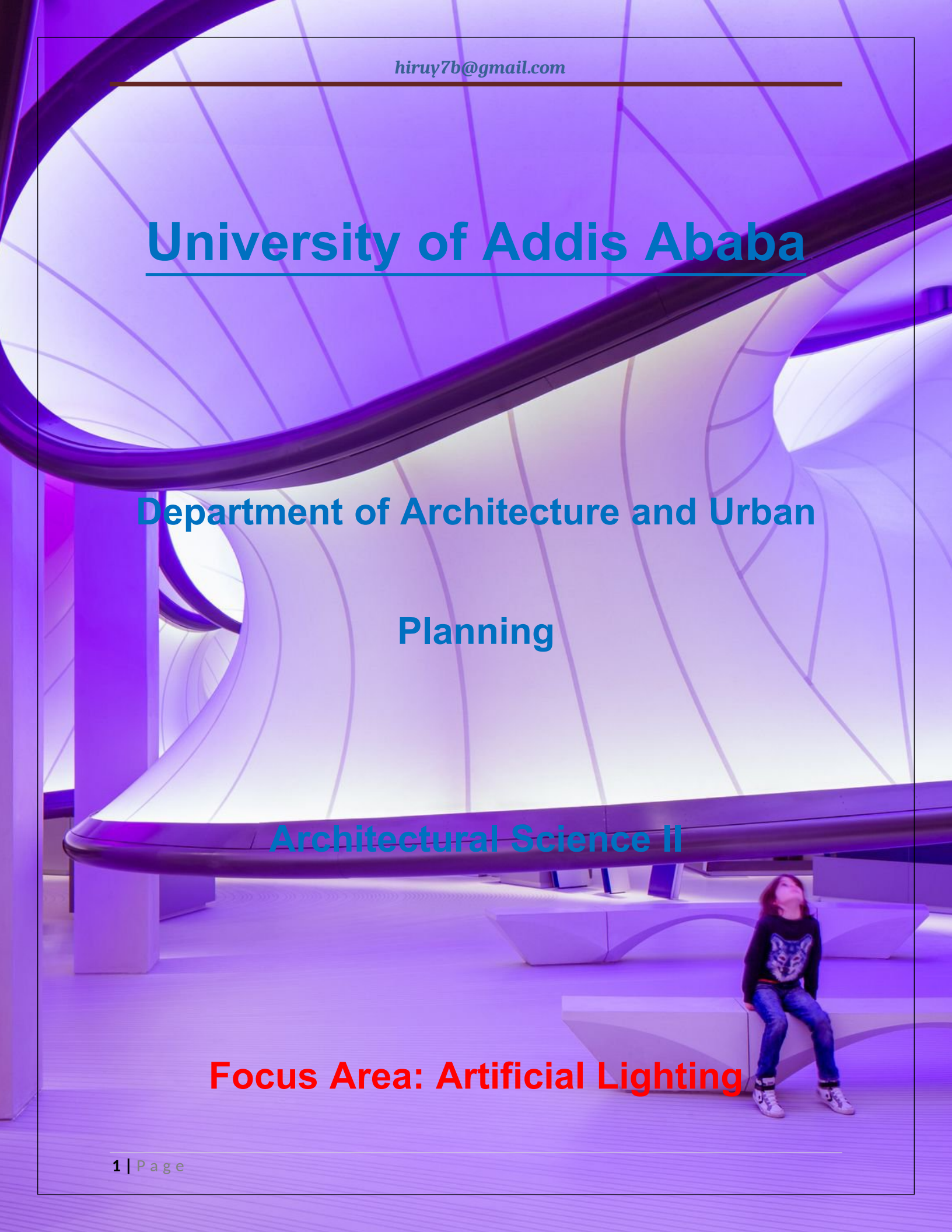
Architectural Science II

Focus Area: Artificial Lighting



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Artificial Lighting

Introduction

Artificial lighting plays a crucial role in architectural science, enhancing both the functionality and aesthetics of built environments. It can be categorized into different types based on purpose, technology, and design approach. Here are the types and uses of artificial lighting in architecture:

I. Types of Artificial Lighting;

Based on

A. Based on Function

B. Based on Light Source Technology

C. Based on Fixture Design Placement

A. Based on Function

1. Ambient (General) Lighting

• Provides uniform illumination for overall visibility.

• Examples: Ceiling-mounted fixtures, chandeliers, recessed lights.

2. Task Lighting

- Focused light for specific activities (reading, cooking, working).
- Examples: Desk lamps, under-cabinet lights, pendant lights over kitchen islands.

3. Accent Lighting

- Highlights architectural features, artwork, or decor.
- Examples: Track lights, wall washers, spotlights.

4. Decorative Lighting

- Enhances aesthetics rather than functionality.
- Examples: LED strips, string lights, sculptural fixtures.

B. Based on Light Source Technology

1. Incandescent Lighting

- Warm, soft light but inefficient (high energy consumption).
- Used in decorative and vintage-style fixtures.

2. Fluorescent Lighting

- Energy-efficient but can produce harsh light.
- Common in offices, commercial spaces, and under-cabinet lighting.

3. LED (Light Emitting Diode) Lighting

- Highly efficient, long-lasting, and versatile (color-changing options).
- Used in ambient, task, and accent lighting.

4. Halogen Lighting

- Bright, crisp light with good color rendering.
- Used in retail displays and task lighting.

5. OLED (Organic LED) Lighting

- Thin, flexible panels with uniform light distribution.
- Emerging in high-end architectural applications.

C. Based on Fixture Design Placement

1. Recessed Lighting

- Embedded into ceilings for a clean, minimalist look.

2. Surface-Mounted Lighting

- Fixtures attached to walls or ceilings (e.g., sconces, track lights).

3. Pendant Lighting

- Suspended from ceilings, often used in dining areas or lobbies.

4. Cove Lighting

- Hidden LED strips in coves or recesses for indirect illumination.

5. Wall Washers Grazers

- Used to highlight textured surfaces (brick, stone) or long walls.

II. Uses of Artificial Lighting in Architectural Science

A. Functional Uses

- ❖ Enhancing Visibility Safety (e.g., staircases, corridors, parking lots).
- ❖ Supporting Human Circadian Rhythm (tunable white LEDs for health benefits).
- ❖ Energy Efficiency Sustainability (smart lighting controls, motion sensors).

B. Aesthetic Psychological Uses

- Creating Mood Atmosphere (warm vs. cool lighting in restaurants/hotels).
- Defining Spatial Zones (using light to separate living and dining areas).
- Highlighting Architectural Elements (facades, columns, vaulted ceilings).

C. Commercial Urban Applications

- Retail Lighting (spotlights on merchandise, dynamic LED displays).
- Museum Gallery Lighting (UV-filtered LEDs to protect artwork).
- Facade Landscape Lighting (floodlights, path lights for outdoor spaces).

Conclusion

Artificial lighting in architecture is not just about illumination but also about functionality, energy efficiency, and emotional impact. Advances in LEDs, smart lighting, and human-centric design continue to shape modern architectural lighting solutions.

Focused Area /Project/: Office of CEO

Introduction

The connection between a Bank CEO and artificial lighting might be immediately workplace productivity and leadership skill.

Productivity and Decision-Making

Artificial lighting in bank offices or headquarters can significantly impact employee performance, including executives like CEOs. Studies show that well-designed lighting (e.g., natural-like LED lighting) improves focus, reduces fatigue, and enhances decision-making, Specially for a CEO managing high-stakes financial strategies. Poor lighting, on the other hand, may lead to errors or slower cognitive processing.

Lighting type we used for CEO, office

1. **Ambient (General) Lighting:** *For functional purpose and it needs high amount of light based on his duties, communicating Guest, and also to facilitate his good working environment.*

2. **Task Lighting:** *As a CEO's it have reading room, in the room we provide task light.*

Hence, artificial lighting may seem like a minor detail, its role in banking leadership is multifaceted, affecting efficiency, sustainability, security, and brand identity. A Bank CEO's attention to lighting choices reflects broader priorities in innovation and operational excellence.